

TITLE

Binary Optic Reflection Grating for an Imaging Spectrometer

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ABSTRACT TEXT

A high-efficiency reflection grating device has been fabricated in poly-methyl methacrylate (PMMA, Plexiglas) by direct-write electron beam (E-Beam) lithography. The device combines wavelength dispersion and focusing (imaging) in a single element. To overcome the severe chromatic aberration inherent in

diffractive focusing elements, the focusing power is provided by a refractive plano-convex lens. The grating is fabricated on the planar side of the lens to provide wavelength dispersion and aberration correction. This device enables the design of a rugged, compact, lightweight imaging spectrometer suitable for flight applications. Details of the device design, fabrication, and testing will be presented.

BIOGRAPHY

Dr. Wilson received a Ph.D. in Electrical Engineering from Georgia Institute of Technology in 1994. His thesis research included investigations of photoinduced polarization conversion in lithium niobate optical devices and electron waveguiding in semiconductor nanostructures. Currently he is working on diffractive optics in the Microdevices Laboratory at Jet Propulsion Laboratory.